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SOCAL IP LAW GROUP 310 N. WESTLAKE BLVD. STE 120 WESTLAKE VILLAGE, CA 91362			LAFORGIA, CHRISTIAN A	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/591,080

Applicant(s)

GINSBERG ET AL.

Examiner

Christian La Forgia

Art Unit

2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.11 . 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed on 28 July 2003 is noted and made of record.
2. Claims 1 through 54 are presented for examination.

Drawings

3. The drawings were received on 28 July 2003. These drawings are accepted by the Examiner.

Response to Arguments

4. Applicant's arguments with respect to claims 1 through 37 have been considered but are moot in view of the new ground(s) of rejection.
5. The Examiner appreciates the Applicant's effort in fulfilling the request for information under 37 CFR § 1.105. The Attorney for Applicant states that in Mr. Schneider's declaration, Mr. Schneider states that the information requested by the Examiner first appeared in November 1999, but the Examiner failed to see where Mr. Schneider declared any date. Mr. Schneider states in paragraphs 4 and 5 that:

4. Ixia's patent counsel has explained to me that the Patent and Trademark Office has "Requirements for Information." I understand that the Patent and Trademark Office has asked for the following from Ixia:

Technical disclosures, user guides, and/or white papers of the following products found on the Applicant's website from 25 April 1999 (found via <http://www.archive.org>): the IXIA 200 Traffic Generator and Analyzer, the IXIA 1600, IxExplorer, the IXIA LM1000T, the IXIA LM1000LX, the IXIA LM1000SX, and the IXIA LM1000GBIC.

5. Of the products identified in Paragraph 4, only IxExplorer had a manual at that point in time. For the other products, there were only data sheets.

Art Unit: 2131

In fact, Mr. Schneider never states a date explicitly and apparently refers to the manual existing at the date the information was archived on 25 April 1999. Furthermore, upon review of the *IxExplorer User's Guide* disclosed by the Applicant, the Examiner notes that it is version **Revision 2.1.0**, as of 01 November 1999. Since the nature of a revision is drawn to correcting errors and or misinformation, the Examiner believes that the information provided in the *IxExplorer User's Guide* disclosed by the Applicant would be substantially similar to an earlier, unavailable version of the *IxExplorer User's Guide*.

6. As per the Applicant's argument that Fletcher does not disclose, teach, or suggest that a data packet may comprise a TCP source port or a TCP destination port, the Examiner disagrees. The Examiner first calls on column 10, lines 57 through 64 in which Fletcher discloses using TCP (Transmission Control Protocol), thereby incorporating all those features associated with TCP. One with a basic knowledge of TCP/IP would recognize that communicating via a TCP/IP session incorporates source and destination IP addresses, as well as source and destination TCP ports. For an introduction to the use of TCP ports please refer to *Section 13.7 Ports, Connections, and Endpoints*, which begins on page 216 and ends on page 218, of *Internetworking with TCP/IP Principles, Protocols, and Architectures* by Douglas E. Comer. For more information on TCP also refer to *Section 13.11 TCP Segment Format*, which begins on page 221 and ends on page 222, of *Internetworking with TCP/IP Principles, Protocols, and Architectures*, as well as Figure 13.7 for a visual representation.

7. As per the Applicant's arguments that the Examiner confuses inherency with obviousness with regards to claims 7 through 11 and 16 through 22, the Examiner suggests the Attorney for Applicant review the disclosed sections of *Internetworking with TCP/IP Principles, Protocols,*

Art Unit: 2131

and Architectures, particularly Chapters 7 and 13, as well as the discussion of data transmission in the OSI model given on pages 34 and 35 of **Computer Networks** by Andrew S. Tanenbaum. With regards to the claims that deal with checksums, it is commonly observed each layer of the OSI model adds its own header to the data packet as the data passes through. It is also recognized that each header comprises a checksum. The Examiner first draws on Figure 7.3, page 98 of *Internetworking with TCP/IP Principles, Protocols, and Architectures*, which illustrates a typical IP datagram header, upon examining this figure, one will notice the header checksum. Further on in *Internetworking with TCP/IP Principles, Protocols, and Architectures*, on page 221, specifically Figure 13.7, one will come across an illustration of a standard TCP segment. Again upon examination of this figure, one will notice the block checksum. In order to refer to the CRC checksum, the Examiner refers to pages 21 through 23 of **TCP/IP Illustrated Volume 1: The Protocols**, by W. Richard Stevens. Pages 21 through 23 discuss the most common physical layer protocol, Ethernet. Referring to Figure 2.1 one will notice the CRC checksum. As the packet is constructed and eventually deconstructed, each checksum is checked at its respective layer in the OSI model. As per the claims directed to TCP flags, the Examiner calls on pages 221 through 222, of *Internetworking with TCP/IP Principles, Protocols, and Procedures* by Douglas E. Comer, which provide a more in depth analysis of the TCP flags. As seen in this section, and figure 13.7, is that the flags are present in all TCP headers. The question that arises with the flags is whether they are set or not, and as seen by figure 13.8 the flag is set when the respective bit is set to 1.

8. See further rejections that follow.

Art Unit: 2131

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 16, 17, 18, 35, 45, and 53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Applicant fails to point out which TCP flag is set. As taught by Comer, there are 6 possible flags that can be set, depending on certain conditions, such as urgency or synchronizing.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1 through 54 are rejected under 35 U.S.C. 102(b) based upon a public use or sale of the invention.

13. As shown by the Examiner's request for information under 37 CFR § 1.105 the Applicant had several products on sale and in public use that appeared to have similar properties to the instant application, including, but not limited to, the IXIA 200 Traffic Generator and Analyzer, the IXIA 1600, the IxExplorer, the IXIA LM1000T, the IXIA LM1000LX, the IXIA LM1000SX, and the IXIA LM1000GBIC. Paragraph 5 of the Declaration (paper no. 10) made by David Schneider states:

Art Unit: 2131

Of the products identified in Paragraph 4 (the abovementioned products), only IxExplorer had a manual at that point in time (25 April 1999). For the other products, there were only data sheets.

Even though the *IxExplorer User's Guide* was published 01 November 1999, the statement above provides that the information was available as early as 25 April 1999. After reviewing IDS paper no. 11, in particular the *IxExplorer User's Guide*, the invention of the instant application was on sale and in public use more than one (1) year prior to filing the instant application. For example, on page 3-13 of *IxExplorer User's Guide* clearly states the limitations of claim 1 and is recited below:

In this scenario, ports A and X are configured on one subnet, and ports B and Y are configured on a separate subnet. IP traffic is sent from A with a source address and a destination address of B. The DUT is configured to route or forward to Y packets that it receives on X for an address on B-Y's subnet. When enabled on port B, the RoundTrip Flows feature does several things to the received packet:

- The source and destination IP address and ports are reversed, creating a packet destined for port A.
- Sets the frame size, destination MAC address and background data pattern as specified in the control dialog.
- Leaves the time stamp in the packet unmodified.
- Transmits the packet, which should be routed back at port A.

This makes it possible, when the packet is received at port A to measure the round-trip time through the DUT.

Furthermore, there is discussion of using IxExplorer with the IXIA 200, which was announced in Atlanta Georgia at the *Networld+Interop*, held on 19, October 1998. Therefore, the present invention was on sale and in public use as of 25 April 1999, if not earlier, according to the statement above by David Schneider and the disclosed *IxExplorer User's Guide*.

14. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 2131

15. Claims 31, 32, 34, 36 through 39, 41, 42, 46, 48, 49, 50, and 54 are rejected under 35 U.S.C. 102(e) as being unpatentable by U.S. Patent No. 6,012,096 to Link et al., hereinafter Link.

16. As per claim 31, Link teaches an electronic apparatus for determining a time delay for a round-trip transmission of data comprising:

an output memory portion coupled to the input memory portion and the second memory and data transfer management portion (Figure 1 [block 53]; column 3, lines 15-52; column 4, lines 17-31);

a data pattern management portion for managing an insertion of a data pattern into an outgoing data packet (Figure 1 [block 53]; column 3, lines 15-52; column 4, lines 17-31)

selecting a first source value, a first destination value and a first time stamp from the incoming data packet (Figures 5 [block 80a], 6 [block 82f], 7a [block 82f]; column 6, lines 19-33);

setting a second source value to be the first destination value (Figure 7b; column 7, lines 4-33);

setting a second destination value to be the first source value (Figure 7b; column 7, lines 4-33);

setting a second time stamp to be the first time stamp (Figure 7b [block 84f]; column 7, lines 4-33);

a header format portion for inserting the second value, the second destination value and the second time stamp into the outgoing data packet (Figures 5 [block 80a]; column 6, lines 19-33).

17. With regards to claim 32, Link teaches further comprising:

an incoming data portion comprising:

a data reception portion for receiving the incoming data packet (Figure 1 [blocks 53]; column 4, lines 4-31);

an input memory portion for storing a portion of an incoming data packet (Figure 1 [blocks 53]; column 4, lines 4-31);

a data validity portion for validating the incoming data packet (Figure 1 [blocks 53], 5 [block 80a]; column 4, lines 4-31; column 6, lines 19-33); and

an outgoing data portion comprising:

the output memory portion (Figure 1 [blocks 53]; column 4, lines 4-31);

the data pattern management portion (Figures 1 [blocks 53], 5 [block 80a]; column 4, lines 4-31; ; column 6, lines 19-33);

the header format portion (Figures 1 [blocks 53], 5 [block 80a]; column 4, lines 4-31; column 6, lines 19-33); and

a data transmission portion for transmitting the outgoing data packet (Figure 1 [blocks 53]; column 4, lines 4-31).

18. With regards to claims 34 and 54, Link teaches wherein:

the input memory portion, the output memory portion, the header format portion, and the data pattern management portion are located within a field-programmable gate array (Figure 1 [blocks 53]; column 4, lines 4-31).

19. Regarding claim 36, Link teaches wherein:

the first source value comprises an IP source address for the incoming data packet (Figures 5 [block 80a], 7a, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13);

the first destination value comprises an IP destination address for the incoming data packet (Figures 5 [block 80a], 7a, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13);

the second source value comprises an IP source address for the outgoing data packet (Figures 5 [block 80a], 7b, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13);

the second destination value comprises an IP destination address for the outgoing data packet (Figures 5 [block 80a], 7b, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13).

20. Concerning claim 37, the Applicant failed to add any limitations to the cancelled limitations of claim 37.

21. As per claim 38, Link teaches a method of determining a time delay for a round-trip transmission of data comprising:

receiving a first data packet, the first data packet comprising:

a first source value (Figures 5a [block 80a], 6, 7a; column 6, lines 19-33);

Art Unit: 2131

a first destination value (Figures 5a [block 80a], 6, 7a; column 6, lines 19-33);

a first time stamp indicating a first time when the first data packet was transmitted

preparing a second data packet (Figures 6 [block 82f], 7a [block 82f]; column 6, lines 19-33), the second data packet comprising:

a second source value (Figures 5a [block 80a], 6, 7b; column 6, lines 19-33; column 7, lines 4-33);

a second destination value (Figures 5a [block 80a], 6, 7b; column 6, lines 19-33; column 7, lines 4-33);

a second time stamp (Figure 7b [block 84f]; column 7, lines 4-33);

setting the first destination value as the second source value in the second data packet

setting the first source value as the second destination value in the second data packet setting the first time stamp as the second time stamp in the second data packet transmitting the second data packet (Figure 7b [block 84f]; column 7, lines 4-33).

22. Regarding claims 39 and 48, Link teaches further comprising validating the first destination value before inserting the first destination value, before inserting the first source value, and before transmitting the second data packet (Figures 2 [block 70], 3, 8 [block 802], 9 [block 922]; column 4, line 66 to column 5, line 12; column 6, lines 34-53)

23. Regarding claims 41 and 49, Link teaches wherein

inserting the first destination value occurs while transmitting the second data packet (Figures 7b, 9 [block 904]; column 5, lines 20-25; column 7, lines 4-13);

Art Unit: 2131

inserting the first source value occurs while transmitting the second data packet (Figures 7b, 9 [block 904]; column 5, lines 20-25; column 7, lines 4-13).

24. Regarding claims 42 and 50, Link teaches wherein inserting the first time stamp occurs while transmitting the second data packet (Figures 7b [block 84f], 9 [block 910]; column 5, lines 20-25; column 7, lines 20-25).

25. As per claim 46, Link teaches an apparatus for determining a time delay for a round-trip transmission of data comprising:

means for receiving a first data packet, the first data packet comprising:

a first source value (Figures 5a [block 80a], 6, 7a; column 6, lines 19-33);

a first destination value (Figures 5a [block 80a], 6, 7a; column 6, lines 19-33);

a first time stamp indicating a first time when the first data packet was transmitted (Figures 6 [block 82f], 7a [block 82f]; column 6, lines 19-33);

means for preparing a second data packet comprising a second source value, a second destination value, a second time stamp (Figures 5a [block 80a], 6, 7b; column 6, lines 19-33; column 7, lines 4-33);

means for inserting the first destination value as the second source value in the second data packet (Figures 7b, 9 [block 904]; column 5, lines 20-25; column 7, lines 4-13);

means for inserting the first source value as the second destination value in the second data packet (Figures 7b, 9 [block 904]; column 5, lines 20-25; column 7, lines 4-13);

Art Unit: 2131

means for inserting the first time stamp as the second time stamp in the second data packet (Figures 7b [block 84f], 9 [block 910]; column 5, lines 20-25; column 7, lines 20-25);

means for transmitting the second data packet (Figures 4 [block 402], 7b [block 84], 9 [blocks 902, 910]; column 7, lines 14-19).

Claim Rejections - 35 USC § 103

26. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

27. Claims 1 through 30, 33, 35, 40, 43, 44, 45, 47, 51, 52, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Link.

28. As per claim 1, Link teaches a method of determining a time delay for a round-trip transmission of data comprising:

receiving a first data packet comprising a first IP source address, a first IP destination address, a first TCP source port, a first TCP destination port, and a first time stamp indicating a first time when the first data packet was transmitted (Figures 4 [block 402], 6, 7a, 9 [block 902]; column 5, lines 20-25; column 6, lines 53-65);

inserting the first IP destination address as a second IP source address in a second data packet (Figures 7b, 9 [block 904]; column 5, lines 20-25; column 7, lines 4-13);

inserting the first IP source address as a second IP destination address in the second data packet (Figures 7b, 9 [block 904]; column 5, lines 20-25; column 7, lines 4-13);

inserting the first TCP destination port as a second TCP source port in the second data packet (Figures 5 [block 80a], 7b, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13);

Art Unit: 2131

inserting the first TCP source port as a second TCP destination port in the second data packet (Figures 5 [block 80a], 7b, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13);

inserting the first time stamp as a second time stamp in the second data packet (Figures 7b [block 84f], 9 [block 910]; column 5, lines 20-25; column 7, lines 20-25); and

transmitting the second data packet (Figures 4 [block 402], 7b [block 84], 9 [blocks 902, 910]; column 7, lines 14-19). Link does not teach using TCP (transmission control protocol). Link teaches using UDP (user datagram protocol). TCP and UDP are both Transport Layer protocols of the OSI model, and therefore have many similarities. The major difference between UDP and TCP is that UDP is connectionless-oriented while TCP is connection-oriented. A connection-oriented protocol verifies that every packet of data is that is sent via the network is received at the client side. For more information on UDP and TCP please refer to Chapters 12 and 13, respectively, of **Internetworking with TCP/IP Principles, Protocols, and Architectures** by Douglas E. Comer. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use TCP instead of UDP in order to create a more reliable method of determining roundtrip latency.

29. Regarding claims 2, 40, and 47, Link teaches further comprising:

transmitting the first data packet at the first time (Figures 6 [block 82f], 7a [block 82f]; column 6, lines 19-53);

receiving the second data packet at a second time (Figures 7b [block 84f], 9 [blocks 902, 910]; column 7, lines 14-25); and

Art Unit: 2131

determining a difference between the first time in the second time stamp and the second time to establish the time delay for the round-trip transmission of data (Figure 9 [block 912]; column 7, lines 14-33).

30. Regarding claim 3, Link teaches further comprising:

validating the first IP destination address while receiving the first data packet, before inserting the first IP destination address, before inserting the first IP source address, before inserting the first TCP destination port, before inserting the first TCP source port, and before transmitting the second data packet (Figures 2 [block 70], 3, 8 [block 802], 9 [block 922]; column 4, line 66 to column 5, line 12; column 6, lines 34-53); and

validating the first TCP destination port while receiving the first data packet, before inserting the first IP destination address, before inserting the first IP source address, before inserting the first TCP destination port, before inserting the first TCP source port, and before transmitting the second data packet (Figures 2 [block 70], 3, 8 [block 802], 9 [block 922]; column 4, line 66 to column 5, line 12; column 6, lines 34-53). Link teaches keeping a record of IP addresses a client communicates with. It would be obvious to one of ordinary skill in the art at the time the invention was made to also keep track of the TCP destination port as it is typically needed in a TCP/IP transmission, see *Section 13.7 Ports, Connections, and Endpoints*, which begins on page 216 and ends on page 218, of *Internetworking with TCP/IP Principles, Protocols, and Architectures* by Douglas E. Comer.

31. Regarding claims 4, 5, 6, 12 and 23, Link teaches wherein:

Art Unit: 2131

inserting the first IP destination address occurs while transmitting the second data packet (Figures 7b, 9 [block 904]; column 5, lines 20-25; column 7, lines 4-13);

inserting the first IP source address occurs while transmitting the second data packet (Figures 7b, 9 [block 904]; column 5, lines 20-25; column 7, lines 4-13);

inserting the first TCP destination port occurs while transmitting the second data packet (Figures 5 [block 80a], 7b, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13);

inserting the first TCP source port occurs while transmitting the second data packet (Figures 5 [block 80a], 7b, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13); and

inserting the first time stamp occurs while transmitting the second data packet (Figures 7b [block 84f], 9 [block 910]; column 5, lines 20-25; column 7, lines 20-25). Link does not teach using TCP (transmission control protocol). Link teaches using UDP (user datagram protocol). TCP and UDP are both Transport Layer protocols of the OSI model, and therefore have many similarities. The major difference between UDP and TCP is that UDP is connectionless-oriented while TCP is connection-oriented. A connection-oriented protocol verifies that every packet of data that is sent via the network is received at the client side. For more information on UDP and TCP please refer to Chapters 12 and 13, respectively, of **Internetworking with TCP/IP Principles, Protocols, and Architectures** by Douglas E. Comer. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use TCP instead of UDP in order to create a more reliable method of determining roundtrip latency.

Art Unit: 2131

32. Regarding claim 7, Link teaches further comprising:

providing the first data packet to further comprise a first IP checksum, a first TCP checksum, and a first CRC checksum (Figures 6, 7a, 7b, 7c; column 6, lines 19-33);

validating the first IP checksum while receiving the first data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33);

validating the first TCP checksum while receiving the first data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33); and

validating the first CRC checksum (Figures 6, 7a, 7b, 7c; column 6, lines 19-33).

33. With regards to claim 8, Link teaches further comprising:

storing the first IP source address and the first IP destination address before validating the first IP checksum (Figures 2 [block 70], 3, 8 [block 802], 9 [block 922]; column 4, line 66 to column 5, line 12; column 6, lines 34-53); and

storing the first TCP source port and the first TCP destination port after validating the first IP checksum and before validating the first TCP checksum (Figures 2 [block 70], 3, 8 [block 802], 9 [block 922]; column 4, line 66 to column 5, line 12; column 6, lines 34-53). Link teaches keeping a record of IP addresses a client communicates with. It would be obvious to one of ordinary skill in the art at the time the invention was made to also keep track of the TCP destination port as it is typically needed in a TCP/IP transmission, see **Section 13.7 Ports, Connections, and Endpoints**, which begins on page 216 and ends on page 218, of **Internetworking with TCP/IP Principles, Protocols, and Architectures** by Douglas E. Comer.

Art Unit: 2131

34. With regards to claim 9, Link teaches wherein:

validating the first TCP checksum occurs after validating the first IP checksum and before validating the first CRC checksum (Figures 6, 7a, 7b, 7c; column 6, lines 19-33).

35. With regards to claim 10, Link teaches wherein:

validating the first CRC checksum occurs after receiving the first data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33).

36. With regards to claim 11, Link teaches further comprising:

determining a second IP checksum for the second data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33);

inserting the second IP checksum into the second data packet while transmitting the second data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33);

determining a second TCP checksum for the second data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33); and

inserting the second TCP checksum into the second data packet while transmitting the second data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33).

37. Regarding claim 13, Link teaches wherein:

Art Unit: 2131

inserting the first IP destination address occurs after inserting the second IP checksum (Figures 7b, 9 [block 904]; column 5, lines 20-25; column 7, lines 4-13);

inserting the first IP source address occurs after inserting the first IP destination address (Figures 7b, 9 [block 904]; column 5, lines 20-25; column 7, lines 4-13);

inserting the first TCP destination port occurs after inserting the first IP source address (Figures 5 [block 80a], 7b, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13); and

inserting the first TCP source port occurs after inserting the first TCP destination port and before inserting the second TCP checksum (Figures 5 [block 80a], 7b, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13). Link does not teach using TCP (transmission control protocol). Link teaches using UDP (user datagram protocol). TCP and UDP are both Transport Layer protocols of the OSI model, and therefore have many similarities. The major difference between UDP and TCP is that UDP is connectionless-oriented while TCP is connection-oriented. A connection-oriented protocol verifies that every packet of data that is sent via the network is received at the client side. For more information on UDP and TCP please refer to Chapters 12 and 13, respectively, of **Internetworking with TCP/IP Principles, Protocols, and Architectures** by Douglas E. Comer. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use TCP instead of UDP in order to create a more reliable method of determining roundtrip latency.

38. Regarding claims 14, 25, 28, 43, and 51, Link teaches further comprising:

providing the first data packet to further comprise a first data pattern (Figures 5, 6, 7a; column 6, lines 19-33); and

inserting a second data pattern into the second data packet (Figure 7b, 9 [block 904]; column 6, lines 19-33; column 7, lines 14-33).

39. Regarding claims 15, 44, and 52, Link teaches wherein:

inserting the second data pattern occurs while transmitting the second data packet (Figure 7b, 9 [block 904]; column 6, lines 19-33; column 7, lines 14-33).

40. Regarding claim 16, Link teaches further comprising:

providing the first data packet to further comprise a first TCP flag (Figures 5 [block 80a], 7a; column 6, lines 19-33); and

inserting the first TCP flag as a second TCP flag into the second data packet (Figures 5 [block 80a], 7b; column 6, lines 19-33).

41. Regarding claim 17, Link teaches further comprising:

validating the first TCP flag while receiving the first data packet, before inserting the first IP destination address, before inserting the first IP source address, before inserting the first TCP destination port, before inserting the first TCP source port, before transmitting the second data packet, and before inserting the first TCP flag (Figures 5 [block 80a], 7a; column 6, lines 19-33).

42. Regarding claim 18, Link teaches wherein:

Art Unit: 2131

inserting the second TCP flag occurs while transmitting the second data packet (Figures 5 [block 80a], 7a; column 6, lines 19-33).

43. Regarding claims 19 and 20, Link teaches further comprising:

providing the first data packet to further comprise two TCP flags (Figures 5 [block 80a], 7a; column 6, lines 19-33);

inserting the two TCP flags into the second data packet (Figures 5 [block 80a], 7a; column 6, lines 19-33);

inserting an additional TCP flag into the second data packet, the additional TCP flag having a value of one (Figures 5 [block 80a], 7a; column 6, lines 19-33); and

inserting three additional TCP flags into the second data packet, the three additional TCP flags each having a value of zero (Figures 5 [block 80a], 7a; column 6, lines 19-33). It would have been obvious to one of ordinary skill in the art at the time the invention was made to set the PSH flag in the TCP header. One would be motivated to set the push flag as a notification from the sender to the receiver for the receiver to pass all the data that is has to the receiving process.

44. With regards to claim 21, Link teaches further comprising:

providing a FIN flag and a SYN flag for the two of the six TCP flags (Figures 5 [block 80a], 7a; column 6, lines 19-33); and

providing an ACK flag for the additional TCP flag (Figures 5 [block 80a], 7a; column 6, lines 19-33). The FIN, SYN, and ACK flags are all inherent to a TCP header, as seen on page

Art Unit: 2131

222 of *Internetworking with TCP/IP Principles, Protocols, and Architectures* by Douglas E. Comer.

45. Regarding claim 22, Link teaches further comprising:

providing the first data packet to further comprise a first IP checksum, first TCP flags, a first TCP checksum, and a first CRC checksum (Figures 5 [block 80a], 6, 7a, 7b, 7c; column 6, lines 19-33);

validating the first IP checksum while receiving the first data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33);

validating the first TCP checksum while receiving the first data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33);

validating the first CRC checksum after receiving the first data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33);

determining a second IP checksum for the second data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33);

inserting and the second IP checksum into the second data packet while transmitting the second data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33);

inserting the first TCP flags as second TCP flags into the second data packet while transmitting the second data packet (Figures 5 [block 80a], 7b; column 6, lines 19-33);

determining a second TCP checksum for the second data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33);

Art Unit: 2131

inserting the second TCP checksum into the second data packet while transmitting the second data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33);

determining a second CRC checksum for the second data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33); and

inserting the second CRC checksum into the second data packet while transmitting the second data packet (Figures 6, 7a, 7b, 7c; column 6, lines 19-33).

46. With regards to claims 24 and 27, Link teaches wherein:

inserting the first IP destination address occurs after inserting the second IP checksum (Figures 7b, 9 [block 904]; column 5, lines 20-25; column 7, lines 4-13);

inserting the first IP source address occurs after inserting the first IP destination address (Figures 7b, 9 [block 904]; column 5, lines 20-25; column 7, lines 4-13);

inserting the first TCP destination port occurs after inserting the first IP source address (Figures 5 [block 80a], 7b, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13);

inserting the first TCP source port occurs after inserting the first TCP destination port (Figures 5 [block 80a], 7b, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13);

inserting the first TCP flags occurs after inserting the first TCP source port (Figures 5 [block 80a], 7b; column 6, lines 19-33);

inserting the second TCP checksum occurs after inserting the first TCP flags (Figures 6, 7a, 7b, 7c; column 6, lines 19-33);

Art Unit: 2131

inserting the first time stamp occur after inserting the second TCP checksum (Figures 7b [block 84f], 9 [block 910]; column 5, lines 20-25; column 7, lines 20-25); and

inserting the second CRC checksum occurs after inserting the first time stamp (Figures 6, 7a, 7b, 7c; column 6, lines 19-33).

47. With regards to claims 26 and 29, Link teaches further comprising:

transmitting the first data packet at the first time from a first electronic apparatus having the first IP source address and the first TCP source port (Figures 4 [block 400], 7a, 9; column 5, lines 15-20);

receiving the second data packet at a second time and at the first electronic apparatus having the second IP destination address and the second TCP destination port (Figures 4 [block 404], 7b, 9; column 5, lines 25-29); and

subtracting the first time in the second time stamp from the second time to determine the time delay for the round-trip transmission of data (Figure 9 [block 912]; column 7, lines 14-33), wherein:

receiving the first data packet further comprises receiving the first data packet at a second electronic apparatus having the first IP destination address and the first TCP destination port (Figures 4 [block 402], 7a, 7b; column 5, lines 20-25); and

transmitting the second data packet further comprises transmitting the second data packet from the second electronic apparatus having the second IP source address and the second TCP source port (Figures 4 [block 402], 7a, 7b; column 5, lines 20-25).

Art Unit: 2131

48. With regards to claim 33, Link teaches wherein:

the first source value comprises a TCP source port for the incoming data packet (Figures 5 [block 80a], 7a, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13);

the first destination value comprises a TCP destination port for the incoming data packet (Figures 5 [block 80a], 7a, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13);

the second source value comprises a TCP source port for the outgoing data packet (Figures 5 [block 80a], 7b, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13);

the second destination value comprises a TCP destination port for the outgoing data packet (Figures 5 [block 80a], 7b, 9 [block 904]; column 4, lines 57-65; column 6, lines 22-33; column 7, lines 4-13). Link does not teach using TCP (transmission control protocol). Link teaches using UDP (user datagram protocol). TCP and UDP are both Transport Layer protocols of the OSI model, and therefore have many similarities. The major difference between UDP and TCP is that UDP is connectionless-oriented while TCP is connection-oriented. A connection-oriented protocol verifies that every packet of data that is sent via the network is received at the client side. For more information on UDP and TCP please refer to Chapters 12 and 13, respectively, of **Internetworking with TCP/IP Principles, Protocols, and Architectures** by Douglas E. Comer. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use TCP instead of UDP in order to create a more reliable method of determining roundtrip latency.

Art Unit: 2131

49. With regards to claim 35, Link teaches wherein the data pattern management portion if further for

selecting a first set of TCP flags from the incoming data packet (Figures 5 [block 80a], 7a; column 6, lines 19-33);

setting a second set of TCP flags to be the first set of TCP flags (Figures 5 [block 80a], 7a; column 6, lines 19-33);

the header format is further for inserting the second set of TCP flags into the outgoing data packet (Figures 5 [block 80a], 7a; column 6, lines 19-33). It would have been obvious to one of ordinary skill in the art at the time the invention was made to set a flag in the TCP header. One would be motivated to set a flag as an example of a notification such as urgency, the transmission was received, or the transmission is over.

50. Regarding claims 45 and 53, Link teaches wherein in the providing step, the first data packet further comprises a first TCP flag, the method further comprising inserting the first TCP flag as a second TCP flag into the second data packet (Figures 5 [block 80a], 7a; column 6, lines 19-33).

51. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Link in view of U.S. Patent No. 6,321,264 to Fletcher et al., hereinafter Fletcher.

52. Regarding claim 30, Link teaches further comprising:

waiting for the first data packet (Figure 9 [block 900]; column 6, lines 53-65);

Art Unit: 2131

checking a validity of the first data packet (column 6, lines 62-65).

53. Link does not teach:

checking a status of a first memory portion;

storing a portion of the first data packet if the first memory portion is available, the portion of the first memory portion comprising the first IP source address, the first IP destination address, the first TCP source port, and the first TCP destination port;

setting the status of the first memory portion to full if the first data packet is valid;

checking a status of a second memory portion;

transferring the portion of the first data packet from the first memory portion to the second memory portion if the second memory portion is available and if the first data packet is valid;

setting the status of the second memory portion to full; and

setting the status of the first memory portion to empty.

54. Fletcher teaches:

checking a status of a first memory portion (Figures 3 [blocks 390, 395], 5 [block 525], 7 [block 730]; column 8, lines 1-63; column 10, line 57-64; column 11, lines 31-67);

storing a portion of the first data packet if the first memory portion is available, the portion of the first memory portion comprising the first IP source address, the first IP destination address, the first TCP source port, and the first TCP destination port (Figures 3 [blocks 390, 395], 5 [block 525], 7 [block 730]; column 8, lines 1-63; column 10, line 57-64; column 11, lines 31-67);

Art Unit: 2131

setting the status of the first memory portion to full if the first data packet is valid (Figures 3 [blocks 390, 395], 5 [block 525], 7 [block 730]; column 8, lines 1-63; column 10, line 57-64; column 11, lines 31-67);

checking a status of a second memory portion (Figures 3 [blocks 390, 395], 5 [block 525], 7 [block 730]; column 8, lines 1-63; column 10, line 57-64; column 11, lines 31-67);

transferring the portion of the first data packet from the first memory portion to the second memory portion if the second memory portion is available and if the first data packet is valid (Figures 3 [blocks 390, 395], 5 [block 525], 7 [block 730]; column 8, lines 1-63; column 10, line 57-64; column 11, lines 31-67);

setting the status of the second memory portion to full (Figures 3 [blocks 390, 395], 5 [block 525], 7 [block 730]; column 8, lines 1-63; column 10, line 57-64; column 11, lines 31-67);
and

setting the status of the first memory portion to empty (Figures 3 [blocks 390, 395], 5 [block 525], 7 [block 730]; column 8, lines 1-63; column 10, line 57-64; column 11, lines 31-67).
It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide for checking the memory before writing. One would be motivated to perform the memory checks as to prevent overwriting data.

Conclusion

55. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian La Forgia whose telephone number is (703) 305-7704. The examiner can normally be reached on Monday thru Thursday 7-5.

Art Unit: 2131

56. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (703) 305-9648. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7240.

57. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Christian LaForgia
Patent Examiner
Art Unit 2131

clf


EMMANUEL L. MOISE
PRIMARY EXAMINER